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WHITAKER'S HOME GUARD
AUTOMATIC WEAPON TRAINING SERIES

HOW TO REMEDY AND PREVENT STOPPAGES

VICKERS MACHINE GUN
BROWNING MACHINE GUN
LEWIS LIGHT MACHINE GUN
BROWNING AUTOMATIC RIFLE
THOMPSON SUB-MACHINE GUN

By CAPTAIN L. V. W. WRIGHT

ILLUSTRATED

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HOW TO REMEDY AND
PREVENT STOPPAGES



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Browning Machine Gun
Lewis Light Machine Gun
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Illustrated

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INTRODUCTORY NOTES

FEW subjects in the whole curriculum of Home Guard automatic weapon training seem to present more difficulties and to be less understood than the so-called "stoppages."

This appears to be equally true of the points to be attended to before, during and after firing, and it is strange that two subjects so closely co-ordinated, so dependent one upon the other, and having such an important bearing upon fire power should be, perhaps on account of a lack of understanding, apparently neglected.

It is well known that all automatic weapons, whether belt or magazine fed, are, at times, subject to temporary "stoppages" and that *Immediate Action* is the procedure taken to remedy the failure and again bring fire to bear upon the target.

Knowledge of the correct *Immediate Action* to apply in any given circumstances is, then, of the utmost importance, for it is alarming to think of the part an imp of chance might play in interrupting a deadly burst of fire at the most critical moment.

Although, if properly carried out, the application of *Immediate Action* under any conditions is a matter of seconds only, they may be very precious seconds and an unnecessary delay causing loss of fire, particularly if it is being depended upon, may have very serious, far-reaching consequences.

It is therefore essential that *Immediate Action* be learned as a drill so that it can be applied instinctively and at once with the least possible delay.

Proficiency in *Immediate Action*, however, is, in itself, not enough. Greater and more effective fire power can be obtained and maintained by correct "servicing" of the weapon, for it is this that will obviate the need for *Immediate Action* by removing the cause of the failure.

Of equal importance, then, is a comprehensive knowledge of the points to be attended to before, during and after firing and *their bearing upon the need for Immediate Action*. This will be better realised, perhaps, when it is emphasised that at least 90 per cent of the failures likely to occur can be prevented by care and strict attention being paid to points B.D.A.

This book therefore confines itself to the all important subjects of I.A. and points B.D.A., and explains their correlation. On each gun the points to be attended to Before, During and After firing are listed separately; the *Immediate Action* to be applied in any circumstances is clearly and concisely set out; the cause of the failure which necessitated Immediate Action is explained, and, finally, the part that any point B.D.A. may play in preventing the failure is made clear.

Prevention is better than cure, but if a failure does occur see that it does not occur again.

Altogether there are 57 causes for temporary failure listed in this manual. Of these no fewer than 40 can be prevented by strict attention to points B.D.A. Most of the remainder, attributable to breakages, are less likely to occur if the weapon is "serviced" with care. Only faulty ammunition can be entirely unforeseen.

As will be seen from the foregoing notes, this book does not set out to describe the parts or mechanism of any of the weapons with which it deals. It is presumed that the reader already has a knowledge of the weapon with which he is armed and the author confines himself to the all-important question of the prevention of stoppages and the remedy should they occur. The two definitions set out on the opposite page are all that are therefore necessary.

DEFINITIONS

STOPPAGE A "stoppage" is any unintentional cessation of fire or failure to fire.

IMMEDIATE ACTION Is the procedure taken to rectify the "stoppage" so that fire may again be brought to bear upon the target.

Remember, "Immediate Action" is never completed until the gun has been re-laid and the trigger or thumb-piece pressed.

It should be learned as a drill so that it can be applied instinctively and at once by night as well as by day.

VICKERS MACHINE GUN

·300 or ·303

POINTS TO BE ATTENDED TO BEFORE, DURING AND AFTER FIRING

BEFORE

Carry out a field stripping, then:—

1. Examine bore of barrel. See that it is clean, free from wear, metallic or other fouling and free from oil.
2. See that both glands are properly packed.
3. Apply oil to the outside of the barrel.
4. See that the muzzle cup and the cone are in place, free from fouling and free from oil.
5. Examine all working parts, particularly lock and extractor. See that they are in good order and that they are free from excessive friction and grit.
6. Oil all working parts (except as in 4) or apply graphite grease according to instructions.
7. See that the connecting rod is adjusted to its correct length.
8. Reassemble gun.
9. Fill barrel casing with the correct amount of *clean* water.
10. Apply test for friction and see that the glands are watertight.
11. Test the weight of the fusee spring and see that it is set at the gun's "pet" weight.
12. See that there is a supply of oil in the traversing handles.
13. Examine belts. See that they are dry and that the pockets are neither too tight nor too loose.
14. When filling belts see that no bulged or thick-rimmed cartridges are inserted, that the ammunition is clean, no empty pockets are left, that the rounds are evenly inserted and that the belts are properly packed into the boxes.

15. See that the belt boxes are up and in line with the feed block.
16. *Make sure that the sliding shutter is open before loading or attempting to fire.*
17. See that the spare parts and condenser can and tube are handy to the gun and in good order.

DURING

1. Do not grasp or touch the belt while it is being fed through, and keep it in line with the feed block.

During any temporary cessation of fire:—

2. Watch the water supply. See that it is maintained so that the barrel is always covered.
3. Watch or test for excessive friction. Oil up if necessary.
4. Glance at the tripod. See that the clamps have not worked loose and that the mounting is upright.
5. Change a partly used belt for a full one.

AFTER

When leaving the firing point if on the range or, if possible, when coming out of action:—

1. Unload and release the lock spring.
2. Oil bore and chamber immediately.
3. Oil the muzzle cup and cone.
4. Sort live rounds from empty cases.
5. Close the sliding shutter before moving off.

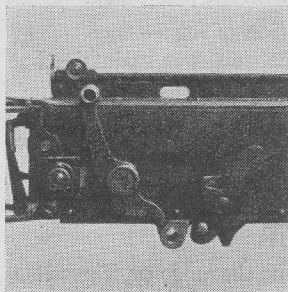
On return to barracks or armoury:—

6. Drain the water from the barrel casing.
7. Leave the water inlet and outlet holes and the steam outlet hole open to facilitate drying.
8. Carry out a field stripping.
9. Pour boiling water through the barrel, thoroughly clean and leave oily.
10. Thoroughly clean and leave slightly oily all working parts. Reassemble gun.
11. Release pressure from the fusee and lock springs.
12. Examine and dry belts if wet.
13. Thoroughly clean tripod and belt boxes.

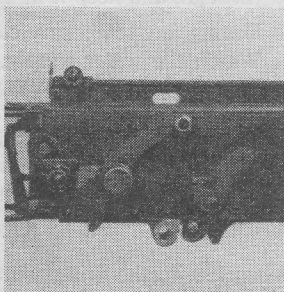
IMMEDIATE ACTION

When the Vickers gun is firing the crank handle is moving backwards and forwards and also rotating upon the roller. Should the gun stop unintentionally, or fail to fire, the crank handle will remain stationary in one of four positions.

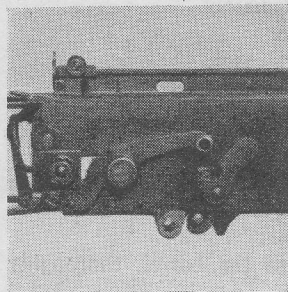
It is these positions that indicate the *Immediate Action* to be applied. The positions are:—



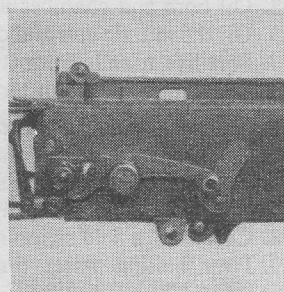
1. Almost upright.



2. At an angle of about 30°.



3. At an angle of about 45°.



4. Home on its bed on the check lever.

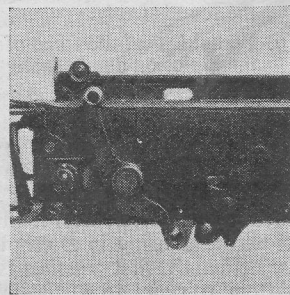
GLANCE AT, OR FEEL FOR, THE POSITION OF THE CRANK HANDLE.

No. 1 STOPPAGE

Immediate Action when the crank handle stops in the first position;—

Pull the crank handle on to the roller, give the belt a sharp tug to the left, let go crank handle, re-lay the gun and carry on firing.

If failure recurs with the crank handle again in the first position, repeat the *Immediate Action* and lighten the fusee spring by half a pound. Re-lay the gun and carry on firing.



Contributory factors to failure in the first position:—

The first position indicates that for some reason or reasons there has not been sufficient force to drive the recoiling portions back and the lock has not been sent far enough to the rear to allow the extractor to drop. The horns of the extractor are caught in the steps of the cams. Why? It may be due to:—

- (a) A worn barrel causing partial loss of the gases which assist recoil.
- (b) Excessive packing in the glands causing friction.
- (c) Muzzle cup not being in position. It cannot catch the gases which assist recoil.
- (d) Excessive friction due to lack of oil.
- (e) Too heavy a fusee spring preventing the recoil from working against it.

Attend to point 1 **BEFORE** firing and this will not occur.

Attend to points 2 and 10 **BEFORE** firing and this will not occur.

Attend to point 4 **BEFORE** firing and this will not occur.

Attend to points 5 and 6 **BEFORE** and point 3 **DURING** firing and this will not occur.

Attend to point 11 **BEFORE** firing and this will not occur.

(f) Pockets in the belt too tight preventing the extractor from withdrawing the rounds freely.

Attend to point 13 BEFORE firing and this will not occur.

(g) Partial loss of the force of the explosion due to faulty ammunition.

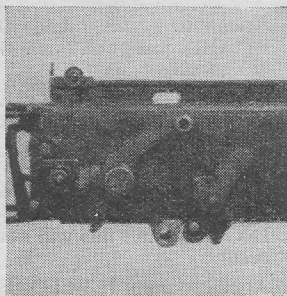
This cannot be prevented by points B.D.A.

Note:—

(1) If the sliding shutter is not opened before loading is attempted the crank handle will be held in approximately the first position just as it commences its *forward* movement. Likewise, if, after loading, the shutter is inadvertently closed and firing is attempted the crank handle will also be held in the first position as it starts its *forward* movement. Attend to point 16 BEFORE loading or firing and this will not occur.

(2) Should a broken gib spring become *wedged* so that the round extracted from the belt is unable to pass down the face of the extractor, the gun will also stop with the crank handle in the first position just as it commences to move forward. This is because the round so held strikes up against the barrel trunnion-block as the lock tries to insert it into the breech. Clear the face of the extractor, change the lock, re-load, re-lay and carry on firing.

No. 2 STOPPAGE



Immediate Action when the crank handle stops in the second position:—

Call for clearing plug. Force the crank handle on to the roller, raise the rear cover and lift up the lock. Examine the round on the face of the extractor. If it is a bulged round call: "Clearing plug not wanted," clear the face of the extractor, replace the lock, close the cover, re-load, re-lay the gun and carry on firing.

If the round on the face of the extractor has the front portion of a separated case adhering to it call "Clearing plug not wanted," clear the face of the extractor, replace the lock, close the cover, re-load, re-lay the gun and carry on firing.

If the round on the face of the extractor is a perfectly good one the clearing plug *is* needed. Clear the face of the extractor, use clearing plug as instructed, re-load, re-lay the gun and carry on firing.

Contributory factors to failure in the second position.

The second position indicates that, after recoil, the lock has commenced its forward movement but cannot go fully home on account of an obstruction. Why? It may be due to:—

(a) A bulged round has been withdrawn from the belt which the extractor is unable to insert into the chamber.

Attend to point 14 BEFORE firing and this will not occur.

(b) A separated case. The front portion left in the breech causes an obstruction to the round following.

Attend to point 7 BEFORE firing and this will seldom, if ever, occur.

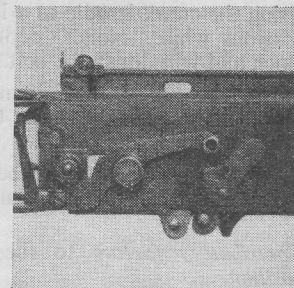
Note.—The position of the crank handle in the second position may vary slightly according to the bulge in (a) or the size of the portion of separated case in (b).

No. 3 STOPPAGE

Immediate Action when the crank handle stops in the third position.

There are three distinct phases to the *Immediate Action* for a failure in the third position. They are dealt with separately, *but all phases must be applied in sequence.*

Phase 1.—Slightly raise the crank handle, hold it, give



the belt a sharp tug to the left and by a glancing blow with the palm of the hand strike the crank handle down on its bed on the check lever. Re-lay the gun and carry on firing.

Contributory factors to the first phase in the third position.

After recoil the lock is unable to go fully home because the extractor cannot rise, and, consequently, the crank handle cannot reach its bed on the check lever. Why? It may be due to:—

- | | |
|---|---|
| (a) The belt has been fed through the feed block slightly crosswise. When the extractor tries to rise and grip the round it cannot do so. | Attend to points 14 and 15 BEFORE firing and point 1 DURING firing and this will not occur. |
| (b) Excessive friction and want of oil, particularly on the lock, preventing the extractor from rising. | Attend to points 5 and 6 BEFORE firing and point 3 DURING firing and this will not occur. |

Phase 2.—If the crank handle does not go down when struck, examine the feed block slide.

If it is *wedged*, pull the crank handle on to the roller (“No. 2” may have to assist by opening the front cover and forcing down the horns of the extractor) and hold it there.

Open the rear cover and “hang” the lock by allowing the horns of the extractor to engage the steps of the cams.

Using the crank handle as a lever draw back the recoiling portions while “No. 2” depresses the pawls of the feed block and withdraws the belt slightly.

While “No. 2” is straightening the rounds in the belt, allow the recoiling portions to go forward but retain the crank handle.

Lower rear cover, give the belt a sharp tug to the left, let go crank handle, relay the gun and carry on firing.

Contributory factors to the second phase in the third position.

After recoil the lock is unable to go fully home because

the extractor cannot rise, and, consequently, the crank handle cannot reach its bed on the check lever. The fact that the slide is *wedged* indicates a jam in the feed block. Why? It may be due to:—

- | | |
|--|---|
| (a) Worn or loose pockets in the belt, causing the rounds to become uneven and jam in the feed block. | Attend to point 13 BEFORE firing and this will not occur. |
| (b) Badly and unevenly filled belts causing the rounds to jam in the feed block. | Attend to point 14 BEFORE firing and this will not occur. |
| (c) Belt box and belt not in line with the feed block. The belt is not fed straight through causing it to jam. | Attend to point 15 BEFORE firing and point 1 DURING firing and this will not occur. |

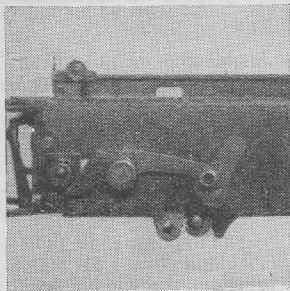
Phase 3.—If the slide is *free*, open the front cover, and pull the crank handle on to the roller assisted by “No. 2,” who helps by forcing down the horns of the extractor.

While “No. 2” withdraws the first round from the belt and closes front cover, open the rear cover, clear the face of the extractor and change the lock. Re-load, re-lay the gun and carry on firing.

Contributory factors to the third phase in the third position.

After recoil the lock is unable to go fully home because the extractor cannot rise, and, consequently, the crank handle cannot reach its bed on the check lever. The fact that the slide is *free* indicates that the feed block is not jammed and the cause of failure must lie elsewhere. It may be due to:—

- | | |
|---|---|
| (a) A thick-rimmed cartridge in the belt which cannot be gripped by the extractor as it attempts to rise. | Attend to point 14 BEFORE firing and this will not occur. |
| (b) Damaged extractor grooves which cannot grip the round in the belt, thus preventing the extractor from rising. | The damage is unlikely to occur after firing has commenced and should have been noticed in point 5 BEFORE firing. |



Immediate Action when the crank handle stops in the fourth position.

Pull the crank handle on to the roller, give the belt a sharp tug to the left, let go crank handle, re-lay the gun and carry on firing.

If the gun still does not fire give it one more chance by repeating the above.

If the gun again fails to fire pull the crank handle on to the roller *twice*, raise rear

cover, lift out and change the lock. Re-load, re-lay the gun and carry on firing.

Contributory factors to the failure when the crank handle stops in the *fourth position*.

There has been little or no recoil. The lock remains in its forward position and the crank handle on its bed on the check lever. Why? It may be due to:—

- | | |
|---|---|
| (a) No round has been fired, consequently there has been no recoil. Empty pocket in the belt. | Attend to points 13 and 14 BEFORE firing and this will not occur. |
| (b) The round in the chamber has been struck by the firing pin but has not exploded. Consequently there has been no recoil. | Faulty ammunition. This cannot be prevented by points B.D.A. |
| (c) The round in the chamber has <i>not</i> been struck by the firing pin and consequently there has been no recoil. | Broken firing pin or weak or broken lock spring. If this occurs after firing has commenced it cannot be prevented by points B.D.A. |
| (d) The round in the chamber has been struck but there is little recoil, the lock and crank handle returning to their forward position. | Faulty ammunition, a weak charge not being sufficient to drive the recoiling portions back. This cannot be prevented by points B.D.A. |

Note.—Should the gib spring be missing from the extractor a series of No. 4 failures will result, the gun only firing very occasionally. The round withdrawn from the belt usually slides completely off the extractor which is therefore unable to place it in the chamber. Attend to point 5 BEFORE firing and this will not occur.

BROWNING MACHINE GUN

•300

POINTS TO BE ATTENDED TO BEFORE, DURING AND AFTER FIRING

BEFORE

Carry out a field stripping, then:—

1. Examine bore of barrel. See that it is clean, free from metallic or other fouling and free from oil.
2. See that both glands are properly packed.
3. Apply oil to the outside of the barrel.
4. Examine all working parts, particularly the bolt and extractor. See that they are in good order and are free from excessive friction and grit.
5. Carry out head space adjustment.
6. Oil all working parts or apply graphite grease according to instructions.
7. Re-assemble gun and apply test for headspace adjustment.
8. Fill the barrel casing with the correct amount of *clean* water.
9. Apply test for friction and see that the glands are watertight.
10. See that the latch is in good order and holds the cover firmly.
11. Examine belts. See that they are dry and that the pockets are neither too tight nor too loose.
12. When filling belts see that no bulged, thick or thin rimmed cartridges are inserted, that the ammunition is clean, no empty pockets are left, that the rounds are even and that the belts are properly packed into the boxes.
13. See that the spare parts and condenser can and tube are handy to the gun and in good order.

DURING

During any temporary cessation of fire:—

1. Watch water supply. See that it is maintained and that the barrel is always covered.
2. Watch or test for excessive friction. Oil up if necessary.
3. Glance at the tripod. See that the clamps have not worked loose and that the mounting is upright.
4. Change partly-used belt for a full one.

AFTER

When leaving the firing point if on the range or if possible when coming out of action:—

1. Unload, release firing pin spring, and apply safety catch.
2. Oil bore and chamber immediately.
3. Sort live rounds from empty cases.

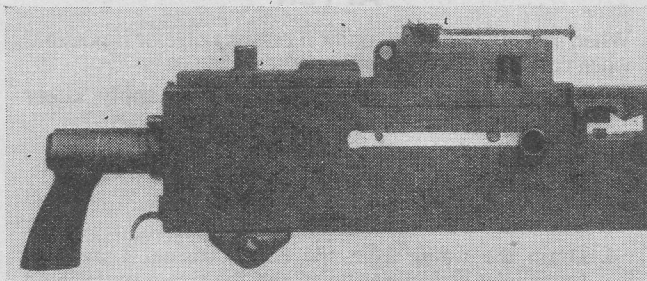
On return to barracks or armoury:—

4. Drain the water from the barrel casing. Leave the water inlet and outlet holes and the steam outlet hole open to facilitate drying.
5. Carry out a field stripping.
6. Pour boiling water through the barrel, thoroughly clean and leave oily.
7. Thoroughly clean and leave slightly oily all working parts.
8. Carry out headspace adjustment.
9. Reassemble gun.
10. Examine and dry belts if wet.
11. Thoroughly clean tripod and belt boxes.

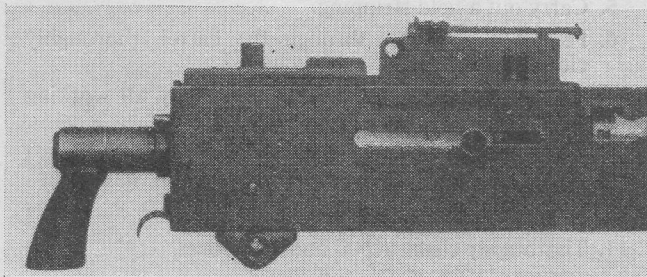
IMMEDIATE ACTION

When the Browning gun is firing the cocking handle is moving backwards and forwards in its slot on the right-hand side of the receiver. Should the gun stop unintentionally or fail to fire, the cocking handle will remain stationary, either fully forward as in illustration 1, or anywhere between its forward or backward limits, as shown in illustration 2.

It is these positions which indicate the *Immediate Action* to be applied.



1. Cocking handle in forward position.



2. Cocking handle shown in an alternative position.

GLANCE AT, OR FEEL FOR, THE POSITION OF THE COCKING HANDLE

Immediate action when the cocking handle stops in its forward position.

Give a sharp rap on the top of the cover, tug the belt to the right, pull cocking handle back to its fullest extent and release it. Re-lay the gun and carry on firing.

If gun still fails to fire, give it one more chance by repeating the above.

If the gun again fails, pull cocking handle to the rear to its fullest extent and this time catch the round which will be ejected through the bottom of the receiver. Examine it. If the cap has been struck, unload, change the *belt*, re-load, re-lay the gun and carry on firing.

If the cap has *not* been struck, unload, change the *bolt*, re-load, re-lay the gun and carry on firing.

Contributory factors to the failure when the cocking handle stops in the *forward position*.

There has been little or no recoil. The bolt and consequently the cocking handle remain in the forward position. Why? It may be due to:—

- | | |
|---|---|
| <p>(a) No round has been fired so there has been no recoil. The belt has not been fed through the feed way.</p> | <p>Attend to point 10 BEFORE firing and this will not occur unless the cause is due to a broken feed pawl or broken feed arm.</p> |
| <p>(b) No round has been fired so there has been no recoil. Empty pocket in the belt.</p> | <p>Attend to points 11 and 12 BEFORE firing and this will not occur.</p> |
| <p>(c) The round in the chamber <i>has</i> been struck by the firing pin but has not exploded. Consequently there has been no recoil.</p> | <p>Faulty ammunition. This cannot be prevented by points B.D.A.</p> |
| <p>(d) The round in the chamber <i>has not</i> been struck by the firing pin and consequently there has been no recoil.</p> | <p>Broken firing pin or weak or broken firing pin spring. If this occurs after firing it cannot be prevented by points B.D.A.</p> |

(e) The round in the chamber has been fired but there is little recoil, the bolt and consequently the cocking handle returning to the forward position.

(f) Tight pocket in the belt. When attempting to withdraw the round the bolt meets with too much resistance, cannot complete its rearward movement and returns to its forward position.

(g) Tight packing in the glands causing excessive friction.

(h) Excessive friction due to want of oil.

Faulty ammunition, a weak charge not being sufficient to drive the recoiling portions back. This cannot be prevented by points B.D.A.

Attend to point 11 BEFORE firing and this will not occur.

Attend to point 2 BEFORE firing and this will not occur.

Attend to points 4 and 6 BEFORE firing and point 2 DURING firing and this will not occur.

2

Immediate Action when the cocking handle stops anywhere between its forward and backward limits.

Pull back the cocking handle to its fullest extent, open the cover and withdraw the belt to the left until the first round is just clear of the face of the feed way.

Remove and examine the round held by the extractor or lodged in the T slots of the bolt face.

If it is a thick or thin rimmed cartridge, a bulged round, or a good round with the front portion of a separated case adhering to it, re-load, re-lay the gun and carry on firing.

If it is a perfectly good round call for clearing plug, use as instructed, re-load, re-lay and carry on firing.

Contributory factors to the failure when the cocking handle stops anywhere between its forward and backward limits.

After recoil the bolt has commenced its forward movement but cannot go fully home on account of an obstruction. Why? It may be due to:—

(a) A thick-rimmed cartridge has been withdrawn from the belt but the extractor cannot place it in the grooves of the T slot. The extractor catches the cam inside the left side of the receiver preventing the bolt from going home.

(b) A thin-rimmed cartridge has been withdrawn from the belt and although the extractor has placed it in the grooves of the T slot it is not held firmly. The nose of the bullet drops and cannot enter the breech, striking against the barrel trunnion.

(c) A bulged round has been withdrawn from the belt and placed in the grooves of the T slot but is unable to enter the breech when the bolt moves forward.

(d) A separated case. When the front portion is left in the breech it causes an obstruction to the round following and thus the bolt is prevented from going home.

Attend to point 12 BEFORE firing and this will not occur.

Attend to point 12 BEFORE firing and this will not occur.

Attend to point 12 BEFORE firing and this will not occur.

Attend to points 5 and 7 BEFORE firing and separated cases will seldom occur.

LEWIS LIGHT MACHINE GUN

•300

POINTS TO BE ATTENDED TO BEFORE, DURING AND AFTER FIRING

BEFORE

Carry out a field stripping, then:—

1. Examine bore of barrel. See that it is clean, free from wear, metallic or other fouling and free from oil.
2. See that the recoil check is in position and tightly screwed.
3. Examine the gas chamber. See that it is free from oil, that the gas ports are clear and that the regulator is set at the hole at which the gun functions best.
4. See that the piston, piston head and rings are free from corrosion and free from oil.
5. Examine all working parts, particularly bolt, extractor and ejector. See that they are in good order and that they are free from excessive friction or grit.
6. Oil all working parts (except as in 4) or apply graphite grease according to instructions.
7. Re-assemble gun.
8. Test the weight of the return spring and see that it is set at the gun's "pet" weight.
9. Examine magazines. See that they are clean and free from grit, that the pan rotates freely, that the retaining plates are not dented or damaged and that the separating pegs are upright.
10. When filling magazines see that no bulged nor thick-rimmed cartridges are inserted, that the ammunition is clean and that no empty spaces are left.
11. See that spare parts are handy to the gun and in good order.

DURING

1. Fire in short bursts only. Watch the barrel for overheating.
2. Do not grasp or touch the magazine while it is rotating.

At every opportunity:—

3. Watch or test for excessive friction. Oil up if necessary.
4. Watch the gas ports for corrosion. Clear or change if necessary.
5. Change a partly used magazine for a full one.
6. See that all empty magazines are refilled.

AFTER

When leaving the firing point if on the range or if possible when coming out of action.

1. Unload, ease the recoiling portions forward, and apply safety catch.
2. Oil bore and chamber immediately.
3. Sort live rounds from empty cases.

On return to barracks or armoury:—

4. Carry out a field stripping.
5. Pour boiling water through the barrel, thoroughly clean and leave oily.
6. Thoroughly clean and leave slightly oily all working parts.
7. Thoroughly clean and remove all fouling from gas chamber, gas ports, piston and gas cylinder.
8. Release pressure from the return spring.
9. Re-assemble gun.
10. Examine and clean magazines.

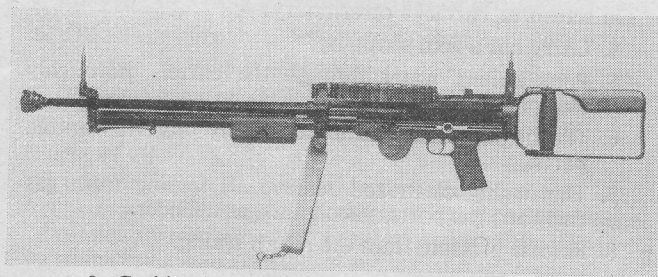
IMMEDIATE ACTION

When the Lewis Gun is firing the cocking handle is moving backwards and forwards in its slot on the left-hand side of the receiver. Should the gun stop firing unintentionally or fail to fire, the cocking handle will remain stationary; either fully forward as in illustration 1, or in any position other than the first, as shown in illustration 2.

It is these positions which indicate the *Immediate Action* to be applied.



1. Cocking handle in forward position



2. Cocking handle shown in an alternative position

GLANCE AT, OR FEEL FOR, THE POSITION OF
THE COCKING HANDLE

No. 1 POSITION

Immediate Action when the cocking handle stops in its forward position.

There are four distinct phases to the Immediate Action for a failure in the forward position. They are dealt with separately *but all phases must be applied in sequence.*

Phase 1.—With a glancing blow with the palm of the left hand try to rotate the magazine. If it *does* rotate remove and change the magazine, cock the gun, re-lay and carry on firing.

If it *does not* rotate freely (or rotates only slightly) cock the gun, re-lay and carry on firing.

Contributory factors to the first phase in the forward position.

There has been little or no recoil. The piston has not been driven back and therefore the cocking handle remains in, or returns to, the forward position. Why? It may be due to:—

- (a) The magazine is empty, no round in the chamber, no explosion and no recoil.
- (b) There has been a misfire. The round in the chamber has been struck by the firing pin but has not exploded. Consequently there has been no recoil.
- (c) Empty space in the magazine. No round has been fired so there has been no recoil.

At every opportunity attend to point 5 DURING firing and this will occur less frequently.

Faulty ammunition. This cannot be prevented by points B.D.A.

Attend to point 10 BEFORE firing and this will not occur.

Phase 2.—Remove the magazine and pull back the cocking handle *sharply*. If a *cartridge* is ejected examine the cap. If it has been struck press the trigger, re-load with a *new* magazine, re-lay the gun and carry on firing. If the ejected

cartridge has not been struck, press the trigger, change the piston, re-load, re-lay the gun and carry on firing.

Contributory factors to the second phase in the forward position.

There has been no recoil. The piston has not been driven back and, therefore, the cocking handle remains in the forward position. Why? It may be due to:—

- | | |
|---|---|
| (a) A second misfire. The round in the chamber has been struck by the firing pin but has not exploded. Consequently there has been no recoil. | Faulty ammunition. This cannot be prevented by points B.D.A., but changing the magazine will probably prevent recurrence. |
| (b) The round in the chamber has not been struck by the firing pin. Consequently there has been no recoil. | Broken firing pin. If this occurs after firing it cannot be prevented by points B.D.A. |

Phase 3.—If an empty case is ejected, oil the breech, change the gas port, re-load, re-lay the gun and carry on firing.

Contributory factor to the third phase in the forward position.

There has been no recoil. The piston has not been driven back and therefore the cocking handle remains in the forward position. Why?

The round in the chamber has been fired but the gases are not strong enough to drive the piston back and enable the extractor to withdraw the empty case.

Attend to points 3 and 4 BEFORE firing and point 4 DURING firing and this will not occur unless it is due to faulty ammunition or too heavy a return spring. See point 8 BEFORE firing.

Phase 4.—If neither a cartridge nor an empty case is ejected examine magazine for damaged retaining plates or separating pegs and the gun for damaged feed pawl and spring. Change if necessary, re-load, re-lay and carry on firing.

Contributory factor to the fourth phase in the forward position.

There has been no recoil. The piston has not been driven back and therefore the cocking handle remains in the forward position. Why?

A round has not been fed from the magazine into the chamber. No explosion and no recoil.

Attend to point 9 BEFORE firing and this will not occur unless the feed pawl and spring become damaged after firing has commenced.

No. 2 POSITION

Immediate Action when the cocking handle stops otherwise than in its forward position.

There are three distinct phases to the Immediate Action for a failure in any other than the forward position. They are dealt with separately *but all phases must be applied in sequence.*

Phase 1.—Force back the cocking handle (using leverage if necessary), counter rotate the magazine with a glancing blow with the palm of the right hand, re-lay the gun and carry on firing.

Contributory factor to the first phase in other than the forward position.

Recoil has taken place, the piston has started its forward movement but is unable to go right home. The cocking handle stopping anywhere between its forward and backward limits. Why? It may be due to:—

- | | |
|--|--|
| (a) Sluggish or damaged stop pawl or spring, allowing the round to be overfed and cause obstruction. | Attend to point 5 BEFORE firing and this is unlikely to occur. |
| (b) A bulged round unable to enter the breech when the bolt moves forward. | Attend to point 10 BEFORE firing and this will not occur. |

- (c) A separated case. When the front portion remains in the breech it causes an obstruction until withdrawn by the round so obstructed.

Faulty ammunition. This cannot be prevented by points B.D.A.

Phase 2.—Force back the cocking handle (using leverage if necessary) and apply safety catch. Remove magazine and examine the gun for obstruction.

If an empty case is seen in the *breech* remove it, change the bolt, re-load, re-lay the gun and carry on firing.

If an empty case is seen in the *well* remove it, examine the ejector and change if necessary. Re-load, re-lay and carry on firing.

If a cartridge is lying in the feed way, remove it, examine the cartridge guide and change if necessary. Re-load, re-lay and carry on firing.

Contributory factors to the *second phase* in *other than* the forward position.

Recoil has taken place, the piston has started its forward movement but is unable to go right home, the cocking handle stopping anywhere between its forward and backward limits. Why? It may be due to:—

- (a) Faulty extraction. An empty case in the breech provides an obstruction to the round following.
- (b) Faulty ejection. An empty case in the well provides an obstruction to the round following.
- (c) Faulty feed. A cartridge lying in the feed way provides an obstruction to the round following.

Attend to points 5 and 10 BEFORE firing and this will not occur unless the extractors fail after firing has commenced.

Attend to points 5 BEFORE firing and this will not occur unless the ejector fails after firing has commenced.

Attend to point 5 BEFORE firing and this will not occur unless the cartridge guide fails after firing has commenced.

Phase 3.—If an empty case was not seen in the breech or well, nor a cartridge lying in the feed way, call for clearing plug, use as instructed, re-load, re-lay the gun and carry on firing.

Contributory factor to the *third phase* in *other than* the forward position.

Recoil has taken place, the piston has started its forward movement but is unable to go right home, the cocking handle stopping anywhere between its forward and backward limits. Why?

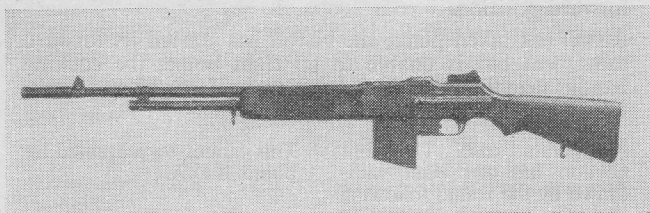
A separated case. The front portion has *not* been withdrawn by the round following and remains as an obstruction in the breech until the clearing plug is used.

This cannot be prevented by points B.D.A.

Note.—If the gun fires only a series of single shots, with the cocking handle stopping in any position, examine and adjust gas regulator and return spring. Probable cause a badly “balanced” gun. This will not occur if strict attention is paid to points B.D.A.

BROWNING AUTOMATIC RIFLE

•300



POINTS TO BE ATTENDED TO BEFORE, DURING AND AFTER FIRING

BEFORE

Carry out a field stripping, then:—

1. Examine bore of barrel. See that it is clean, free from wear, metallic or other fouling and free from oil.
2. See that the flash eliminator is in position and tightly screwed.
3. Examine the gas chamber. See that it is free from oil, that the gas ports are clear and that the regulator is set at the hole at which the rifle functions best.
4. See that the piston, piston head and rings are free from corrosion and free from oil.
5. Examine all working parts, particularly extractor and spring, firing pin and breech. See that they are in good working order and free from excessive friction and grit. Slightly oil the breech.
6. Oil all working parts (except as in 3) or apply graphite grease according to instructions.
7. Re-assemble rifle.
8. Examine magazines. See that they are clean and free

from grit and that the platform depresses and rises freely.

9. When filling magazines see that no bulged nor thick-rimmed cartridges are inserted and that the ammunition is clean.
10. Do not keep magazines filled for lengthy periods as this tends to weaken the magazine spring.
11. See that the spare parts are handy to the rifle and in good order.

DURING

At every opportunity:—

1. Watch or test for excessive friction. Oil up if necessary.
2. Watch the gas ports for corrosion. Clear or change if necessary.
3. Change a partly used magazine for a full one.
4. See that all empty magazines are refilled.

AFTER

When leaving the firing point if on the range or if possible when coming out of action.

1. Unload, ease the recoiling portions forward, and apply safety catch.
2. Oil bore and chamber immediately.
3. Sort live rounds from empty cases.

On return to barracks or armoury:—

4. Pour boiling water through the barrel, thoroughly clean and leave oily.
5. Carry out a field stripping, thoroughly clean and leave slightly oily all working parts.
6. Thoroughly clean and remove all fouling from gas chamber, gas ports, piston and gas cylinder.
7. Re-assemble gun.
8. Empty and clean magazines.

IMMEDIATE ACTION

When the Browning Automatic Rifle is firing, either single shots or bursts, the cocking handle, in its slot on the left-hand side of the breech casing, does not move and gives no outward indication of the *Immediate Action* to be applied should the rifle unintentionally stop firing or fail to fire.

The *bolt* gives the indication, and it is as well to remember that, if properly balanced and cared for failure with the Browning Automatic will seldom occur unless it is due to an empty magazine.

GLANCE AT, OR FEEL FOR, THE POSITION OF THE BOLT THROUGH THE EJECTION OPENING

Immediate Action when the bolt is fully home.

Cock the rifle by pulling the cocking handle sharply to the rear and sliding it forward again. Remove magazine. If the magazine is empty change it for a full one; if reasonably full replace it, re-aim and carry on firing.

If the rifle still fails to fire, cock the rifle and remove magazine. Examine the last round ejected. If the cap has been struck insert a new magazine, re-aim and carry on firing. If the cap has not been struck, change the firing pin, re-load, re-aim and carry on firing.

Contributory factors to the failure.

The bolt is fully home, indicating that there has been little or no recoil. Why? It may be due to:—

- (a) A misfire. The round in the chamber has been struck but has not exploded. Consequently there has been no recoil.
- Faulty ammunition. This cannot be prevented by points B.D.A.

- (b) The round in the chamber has been fired but there is little recoil, due to weak gases. The bolt returns to its forward position.

- (c) Empty magazine. No round in the chamber, no explosion and no recoil.

- (d) Broken firing pin. The round in the chamber has not been struck, there is no explosion and no recoil.

Attend to points 1, 3, 4 and 5 BEFORE firing and point 2 DURING, and this will not occur unless it is due to faulty ammunition.

At every opportunity attend to point 3 DURING firing and this will occur less frequently.

If this occurs after shooting has commenced it cannot be prevented by points B.D.A.

Immediate Action when the bolt is not fully home.

Cock the rifle, apply safety catch and remove magazine. Examine the breech and any round ejected when the rifle was cocked.

If there is a non-ejected case in the breech clear the obstruction, examine the extractor and change if necessary. If the extractor is all right, change the gas port, replace magazine (or a full one if nearly empty), take off safety catch, re-aim and carry on firing.

If a round is ejected which proves to be either a bulged round or a round with the front portion of a separated case adhering to it, replace magazine (or a full one if nearly empty), take off safety catch, re-aim and carry on firing.

If a round is ejected which proves to be a perfectly good round and there was not a non-ejected case in the breech, use the clearing plug as instructed, replace magazine (or a full one if nearly empty), take off safety catch, re-aim and carry on firing.

Contributory factors to the failure.

After recoil the bolt has been unable to go fully home owing to an obstruction. Why? It may be due to:—

(a) Non-ejection of the preceding empty case. The round following is unable to enter the breech.

(b) A bulged round is unable to enter the breech.

(c) Separated case. If the front portion remains in the breech it causes an obstruction to the round following.

Attend to points 3, 5 and 9 BEFORE firing and this will not occur unless the extractor fails after firing has commenced.

Attend to point 9 BEFORE firing and this will not occur.

If the Browning Automatic Rifle is well cared for this is unlikely to occur but it cannot be prevented by points B.D.A.

THOMPSON SUB-MACHINE GUN

·450

(Tommy Gun)



POINTS TO BE ATTENDED TO BEFORE FIRING AND AFTER FIRING

BEFORE

Remove butt and pistol grip, then:—

1. Examine bore of barrel. See that it is clear, free from metallic or other fouling and free from oil.
2. Examine all working parts. See that they are in good order and free from excessive friction and grit.
3. Oil all working parts, particularly the two felt pads.
4. Replace pistol grip and butt.
5. See that there is a supply of oil in the oil can in the butt trap.
6. Examine magazines. With the box type see that they are clean and free from grit and that the platform depresses and rises freely. If in possession of the drum

type, see that they also are clean and free from grit and that the rotor spring is functioning.

7. When filling either type of magazine see that no bulged nor thick-rimmed cartridges are inserted and that the ammunition is clean.
8. Do not keep box type magazines filled for lengthy periods as this tends to weaken the magazine spring. The drum type may be kept filled so long as the spring is not wound.
9. See that the spare parts and cleaning kit are handy to the gun and in good order.

DURING

At every opportunity:—

1. Watch or test for excessive friction. Oil up if necessary.
2. Change a partly used magazine for a full one.
3. See that all empty magazines are refilled.

AFTER

When leaving the firing point if on the range or if possible when coming out of action:—

1. Unload and ease the recoiling portions forward.
2. Oil bore and chamber immediately.
3. Sort live rounds from empty cases.

On return to barracks or armoury:—

4. Pour boiling water through the barrel, thoroughly clean and leave oily.
5. Thoroughly clean and remove all fouling from the compensator.
6. Remove butt and pistol grip, thoroughly clean and leave slightly oily all working parts, particularly the face of the bolt.
7. Replace pistol grip and butt.
8. Empty and clean magazines.

IMMEDIATE ACTION

When the Tommy Gun is firing, either single shots or bursts, the cocking handle (actuator) is moving backwards and forwards very rapidly in its slot on the top of the receiver.

Should the gun unintentionally stop firing or fail to fire the cocking handle indicates the immediate action to be applied but the implication will depend upon the type of magazine being used.

This gun, however, is remarkably free from failure but should failure occur it can almost always be attributed to an empty magazine or misfire.

GLANCE AT, OR FEEL FOR, THE POSITION OF THE COCKING HANDLE

Immediate Action when the *box-type magazine* is being used.

If the cocking handle stops in its forward position, cock the gun, re-aim and carry on firing.

If the cocking handle stops in its rearmost position, change the magazine, re-aim and carry on firing.

There are two *contributory factors* to the failure when the *box-type magazine* is being used.

- | | |
|---|---|
| (a) The bolt is fully home, indicating that there has been a misfire. | Cannot be prevented by points B.D.A. |
| (b) The bolt has been driven back but does not go forward again, indicating that the magazine is empty. | At every opportunity attend to point 2 DURING firing and this will occur less frequently. |

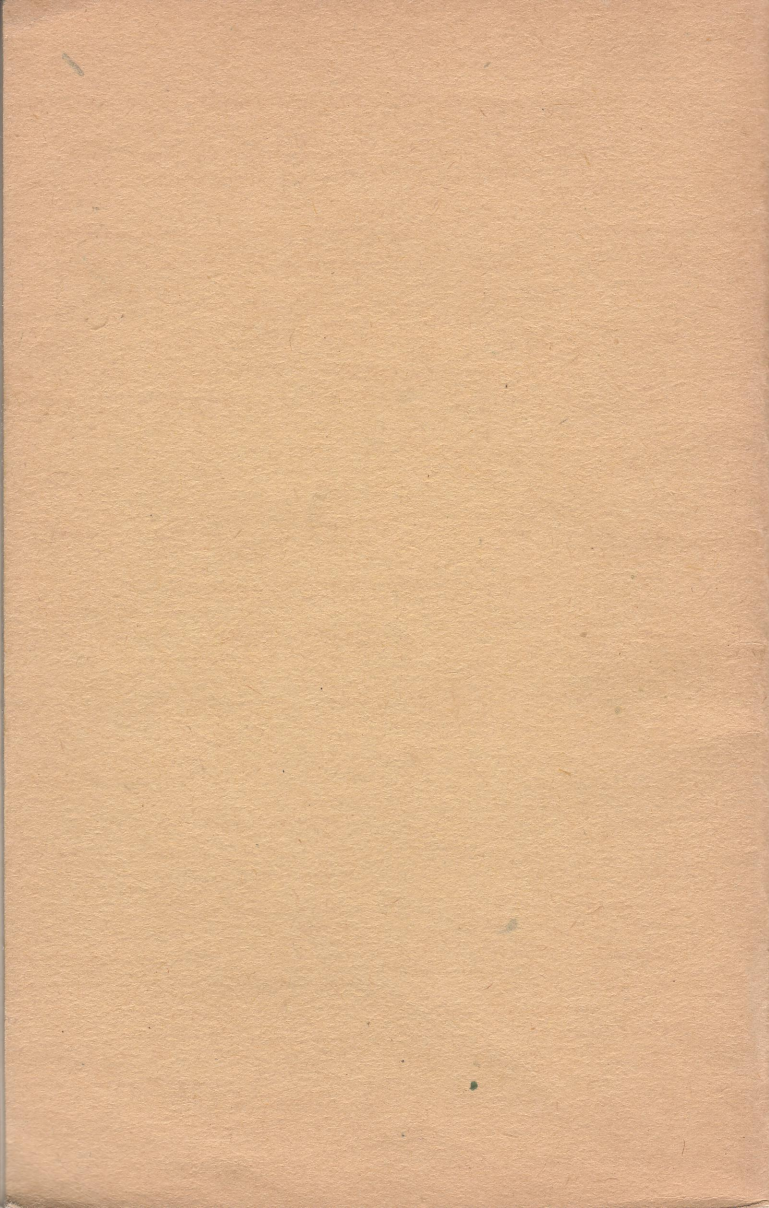
Immediate Action when the *drum-type magazine* is being used.

When the cocking handle stops in its forward position *and no rattling sound is heard*, cock the gun, re-aim and carry on firing.

When the cocking handle stops in its forward position *accompanied by a distinct rattling sound*, cock the gun, change the magazine, re-aim and carry on firing.

Again, there are two *contributory factors* to the failure when the *drum-type magazine* is being used.

- | | |
|---|---|
| (a) The bolt went fully home but there was no rattling sound, indicating a mis-fire. | Cannot be prevented by points B.D.A. |
| (b) The bolt went fully home and there was a distinct rattling sound caused by the rotor and spring, indicating that the magazine is empty. | At every opportunity attend to point 2 DURING firing and this will occur less frequently. |





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